

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions, listing, of claims in the specification.

LISTING OF CLAIMS:

Claim 1 (original) A gallium nitride (GaN) based light-emitting device (LED), comprising:

a light-emitting body comprising a GaN-based material capable of emitting a light;

a light extraction layer comprising:

a current spreading layer disposed over said light-emitting body; and

a micro-structure layer disposed over said current spreading layer,

wherein the micro-structure is a TiN layer having a nano-net structure.

Claim 2 (original) The LED according to Claim 1, wherein said light-emitting body comprises an n-type GaN-based layer, a semiconductor active layer and a p-type GaN-based layer and said semiconductor active layer is disposed over said n-type GaN-based layer and said p-GaN-based layer is disposed over said active layer.

Claim 3 (original) The LED according to claim 1, wherein said light-emitting body has a p-type electrode and an n-type electrode and said p-type electrode is disposed over said micro-structure layer.

Claim 4 (original) The LED according to Claim 3, wherein said p-type electrode is disposed beside said micro-structure layer and said current spreading layer.

Claim 5 (original) The LED according to Claim 1, wherein said current spreading layer is a transparent and conductive layer and selected from a group consisting of an Ni/Au double layer structure, Ni, Pt, Pd, Rh, Ru, Os, Ir, Zn, In, Sn, Mg and an oxide thereof.

Claim 6 (original) The LED according to Claim 1, wherein said TiN nanonet is formed by nitridating a Ti layer.

Claim 7 (original) A gallium nitride (GaN) based light-emitting device (LED), comprising:

a light-emitting body comprising a GaN-based material capable of emitting a light; and

a light extraction layer comprising:

a current spreading layer disposed over said light-emitting body; and
a micro-structure layer disposed over said current spreading layer
and being a Pt layer having metal clusters.

Claim 8 (original) The LED according to Claim 7, wherein said light-emitting body comprises an n-type GaN-based layer, a semiconductor active layer and a p-type GaN-based layer and said semiconductor active layer is disposed over said n-type GaN-based layer and said p-GaN-based layer is disposed over said active layer.

Claim 9 (original) The LED according to Claims 7 and 8, wherein said light-emitting body has a p-type electrode and an n-type electrode and said p-type electrode is disposed over said micro-structure layer.

Claim 10 (original) The LED according to Claim 9, wherein said p-type electrode is disposed beside said micro-structure layer and said current spreading layer.

Claim 11 (original) The LED according to Claim 6, wherein said current spreading layer is a transparent and conductive layer and selected from a group

MR2349-992

Appln. No. 10/781,766

Reply to Office Action dated 9/27/2005

consisting of a Ni/Au double layer structure, Ni, Pt, Pd, Rh, Ru, Os, Ir, Zn, In, Sn, Mg and an oxide thereof.

Claim 12 (original) The LED according to Claim 7, wherein said Pt layer having metal clusters is formed by annealing a Pt layer.

Claims 13-17 (canceled).

Claim 18 (original) A gallium nitride (GaN) based light-emitting device (LED), comprising:

a light emitting body comprising a GaN-based material and capable of emitting a light;

a GaN-based p⁺/n⁺ tunneling junction layer disposed over said light-emitting body;

a light extraction layer disposed over said p⁺/n⁺ tunneling junction layer, the light extraction layer being a TiN layer having a nano-net structure or a Pt layer having metal clusters.

Claim 19 (original) The LED according to Claim 18, wherein said light-emitting body comprises an n-type GaN-based layer, a semiconductor active layer and a p-type GaN-based layer, said semiconductor active layer is disposed over

said n-type GaN-based layer and said p-GaN-based layer is disposed over said active layer.

Claim 20 (original) The LED according to Claim 18, wherein said light-emitting body has a p-type electrode and an n-type electrode and said p-type electrode is disposed over a micro-structure layer.

Claim 21 (original) The LED according to Claim 18, wherein said TiN having said nano-net structure is formed by nitridating a Ti layer and said Pt having said metal clusters is formed by annealing a Pt layer.

Claim 22 (original) The LED according to Claim 18, wherein said light extraction layer further comprises a current spreading layer and said current spreading layer is a transparent and conductive layer and selected from a group consisting of a Ni/Au double layer structure, Ni, Pt, Pd, Rh, Ru, Os, Ir, Zn, In, Sn, Mg and an oxide thereof.

Claim 23 (original) A gallium nitride (GaN) based light-emitting device (LED), comprising:

a conductive metal substrate;

a conductive metal reflector disposed over said substrate;

a p-type GaN-based layer disposed over said metal reflector;
a semiconductor active layer disposed over said p-type GaN-based layer;
an n-type GaN-based layer disposed over said semiconductor active layer; and
a micro-structure layer disposed over said n-type GaN-based layer, the micro-structure layer being a TiN layer having a nano-net structure or a Pt layer having metal clusters.

Claim 24 (original) The LED according to Claim 23, wherein a p-type metal is disposed below said conductive metal substrate and an n-type substrate is disposed over said micro-structure layer.

Claim 25 (original) The LED according to Claim 23, wherein said TiN having said nano-net structure is formed by nitridating a Ti layer and said Pt having said metal clusters is formed by annealing a Pt layer.